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ASPIRATOR FOR COLLECTING AND SEPARATING SMALL INSECTS

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ASPIRATOR FOR COLLECTING AND SEPARATING SMALL INSECTS

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ABSTRACT

None of the vacuum aspirators in the past have offered any means of separating insects, either by species or sex, immediately upon collection. A selective vacuum aspirator was designed and built for that purpose. This aspirator has been successfully used on several species of pyralid moths and on many small species of Coleoptera.

INTRODUCTION

One of the most useful tools for collecting small insects is the vacuum aspirator. Several modifications of the insect aspirator were described in Peterson.[2] Other modifications include aspirators to handle minute insects[3] and small arthropods,[4] as well as those designed to collect insects from specific habitats. None of these aspirators offered any means to separate species or sexes immediately upon collection. It is for this purpose that we designed and constructed a selective vacuum aspirator.

DESIGN AND OPERATION

Basically, the unit consists of a single removable aspirating tube, a vacuum selection valve (VSV), and two vacuum lines that lead to a collecting vial or jar (fig. 1*A*). The VSV is essentially a Y-tube with a small drilled hole one-eighth inch in diameter in each side of the Y (fig 1*B*). By covering one of these holes with a finger, the operator can select the vial into which the aspirated insect will go, thus allowing him to separate by species, sex, or any other easily discernible character. The insects will move through the vacuum (covered-hole) side of the Y. In our model, the VSV was made of brass, with one end threaded to allow for interchangeable aspirating tubes (fig. 1*C*). The aspirating tube and vacuum lines were made from 1/4-inch (o.d.) copper tubing; however, similar models could

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[2] Peterson, A. 1964. Entomological techniques. 435 pp Edward Brothers, Inc., Ann Arbor, Michigan.

[3] Kirkpatrick, R. L. 1962. Rubber-bulb aspirators to handle minute insects. J. Econ. Entomol. 55(3): 411.

[4] Matteson, J. W. 1965. A modified aspirator for collecting small arthropods. J. Econ. Entomol. 58(5): 1031–1032.

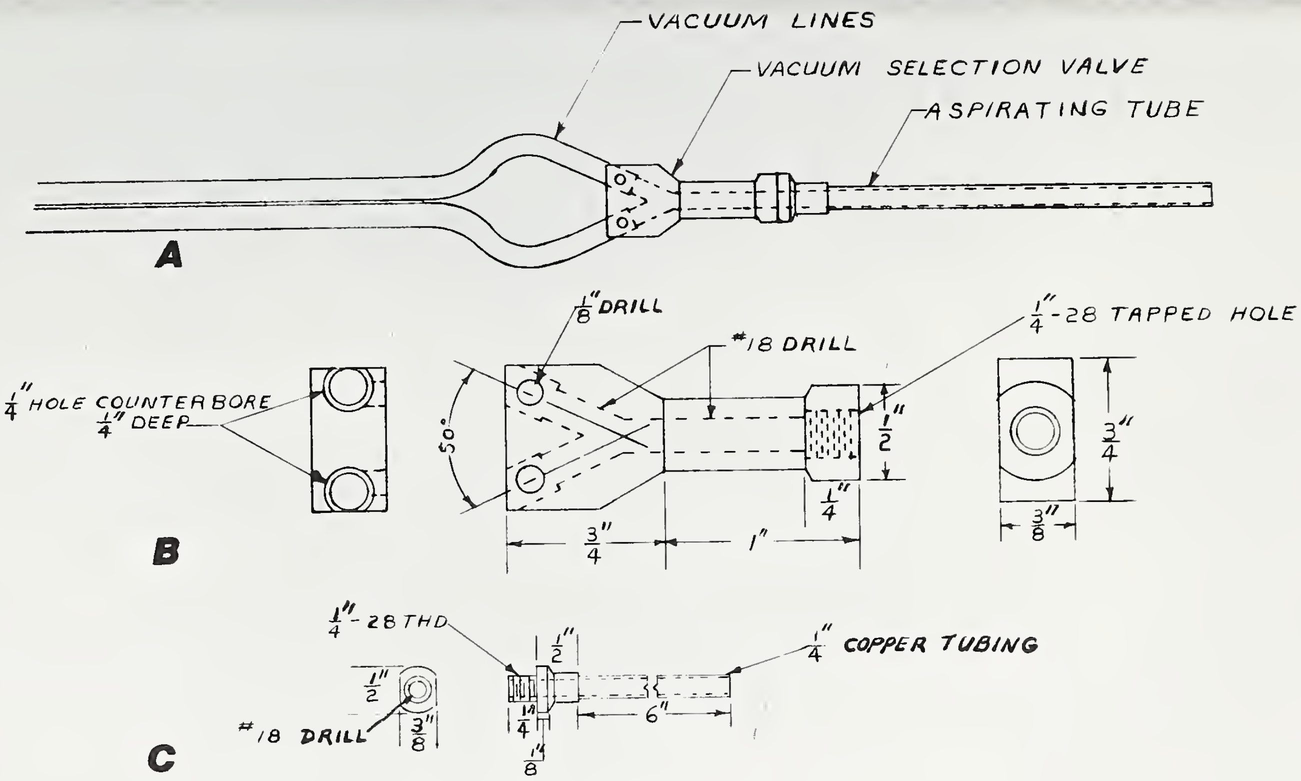

FIGURE 1.—Plans for vacuum aspirator. *A*, Complete assembly. *B*, Vacuum selection valve. *C*, Aspirating tube.

be constructed from plastic or glass. If copper vacuum lines are used, the operator can bend them to allow for a more comfortable grip. Because of the manner in which this instrument is designed to function, a slightly stronger vacuum may be required to handle larger insects.

The speed at which this aspirator can be used is entirely dependent on the dexterity of the operator and his ability to visually recognize the distinguishing characteristics of insects. This aspirator has been used successfully on several species of pyralid moths and on many small species of Coleoptera.

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